

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
4 August 2005 (04.08.2005)

PCT

(10) International Publication Number  
**WO 2005/070537 A1**

(51) International Patent Classification<sup>1</sup>:  
B01J 23/72, 37/08, C07C 29/154, B01J 23/745, 23/89

B01J 23/72,

(74) Agent: WITTOP KONING, T. H.; Exter Polak & Char-  
louis B. V., P.O. Box 3241, NL-2280 GE Rijswijk (NL).

(21) International Application Number:

PCT/NL.2004/000051

(22) International Filing Date: 21 January 2004 (21.01.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(71) Applicants (for all designated States except US): AVAN-  
TIUM INTERNATIONAL B.V. [NL/NL]; Zekeringstraat  
29, NL-1014 BV Amsterdam (NL). UNIVERSITI  
MALAYA [MY/MY]; 50603 Kuala Lumpur (MY)

(72) Inventors; and

(75) Inventors/Applicants (for US only): SIJPKES, André,  
Harmen [NL/NL]; Blauwe Druifjesstraat 12, NL-1338  
SZ Almere (NL). VAN DER PUIL, Nelleke [NL/NL];  
Zacharias Jansestraat 14/2, NL-1097 CL Amsterdam (NL).  
VAN DEN BRINK, Peter, John [NL/NL]; Rijsenburgse-  
laan 22, NL-3972 EJ Driebergen-Rijsenburg (NL). DE  
KEIJZER, Adrianus, Hendricus, Joseph, Franciscus  
[NL/NL]; Mgr. Nolensstraat 23, NL-4631 BN Hoogere-  
heide (NL). ABDUL HAMID, Sharifah, Bee [MY/MY];  
13 Jalan Cecawi, 625 Kota Damansara, 47810 Petaling  
Jaya (MY).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LI, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Euro-  
pean (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,  
GB, GR, HU, IE, II, LU, MC, NL, PT, RO, SE, SI, SK,  
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,  
ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette

(54) Title: CHROMIUM-FREE CATALYSTS OF METALLIC CU AND AT LEAST ONE SECOND METAL

(57) Abstract: Described is a method for the preparation of a chromium-free catalyst comprising Cu and at least one second metal in metallic or oxidic form, comprising the steps of a) preparing a final solution comprising ions of Cu and of at least one second metal, said final solution additionally comprising ions of a complexing agent and having a pH of above 5; b) contacting said final solution with inert carrier to form a final solution/carrier combination; c) optionally, drying the final solution/carrier combination; d) calcining the final solution/carrier combination obtained in step c) or d) to yield Cu and the at least one second metal in oxidic form; and e) reducing at least part of the thus obtained oxidic Cu on the carrier. Further, a catalyst obtainable by the said method as well as uses thereof are described

WO 2005/070537 A1